



CHAPTER 2

Planning

Revised: July 31, 2008, OL-15917-02

This chapter provides guidelines and procedures for planning your H.323-based systems. It includes the following sections:

- [Planning for Redundant Operation of H.323 Links](#)
- [Prerequisites for H.323 Networks](#)
- [Restrictions and Limitations](#)



Tip

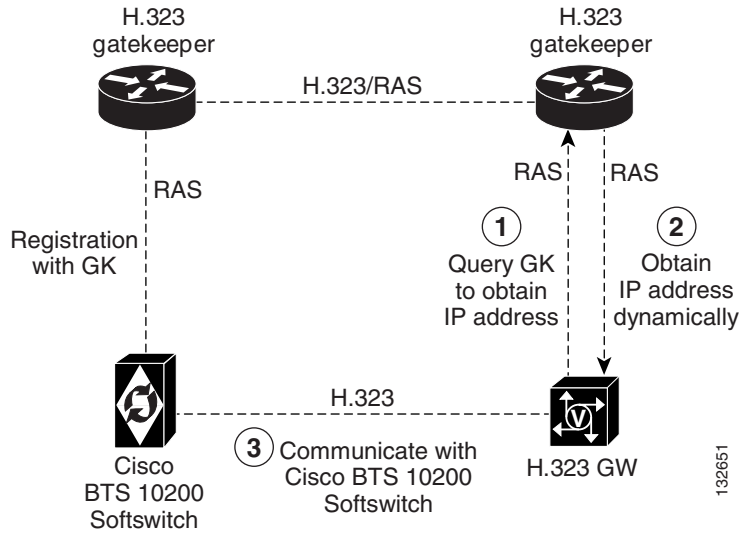
Prerequisites are tasks or conditions (outside the immediate scope of this document) that are required before these new Cisco BTS 10200 Softswitch features can work as specified.

Restrictions and limitations are special conditions or scenarios for which these features might not work, or might behave in an unexpected manner.

Planning for Redundant Operation of H.323 Links

[Figure 2-1](#) shows an H.323 network with the Cisco BTS 10200 Softswitch, H.323 GW (with Cisco IOS), and a GK. Refer to this figure as needed during the planning procedures described in this section. During startup, the Cisco BTS 10200 Softswitch registers its active IP address (the address used for H.323 signaling) with the GK. The peer H.323 GW dynamically obtains the IP address (shown as step 2 in [Figure 2-1](#)) by sending a query to the GK (shown as step 1 in [Figure 2-1](#)). When the GW signals the Cisco BTS 10200 Softswitch, it transmits to this IP address (shown as step 3 in [Figure 2-1](#)).

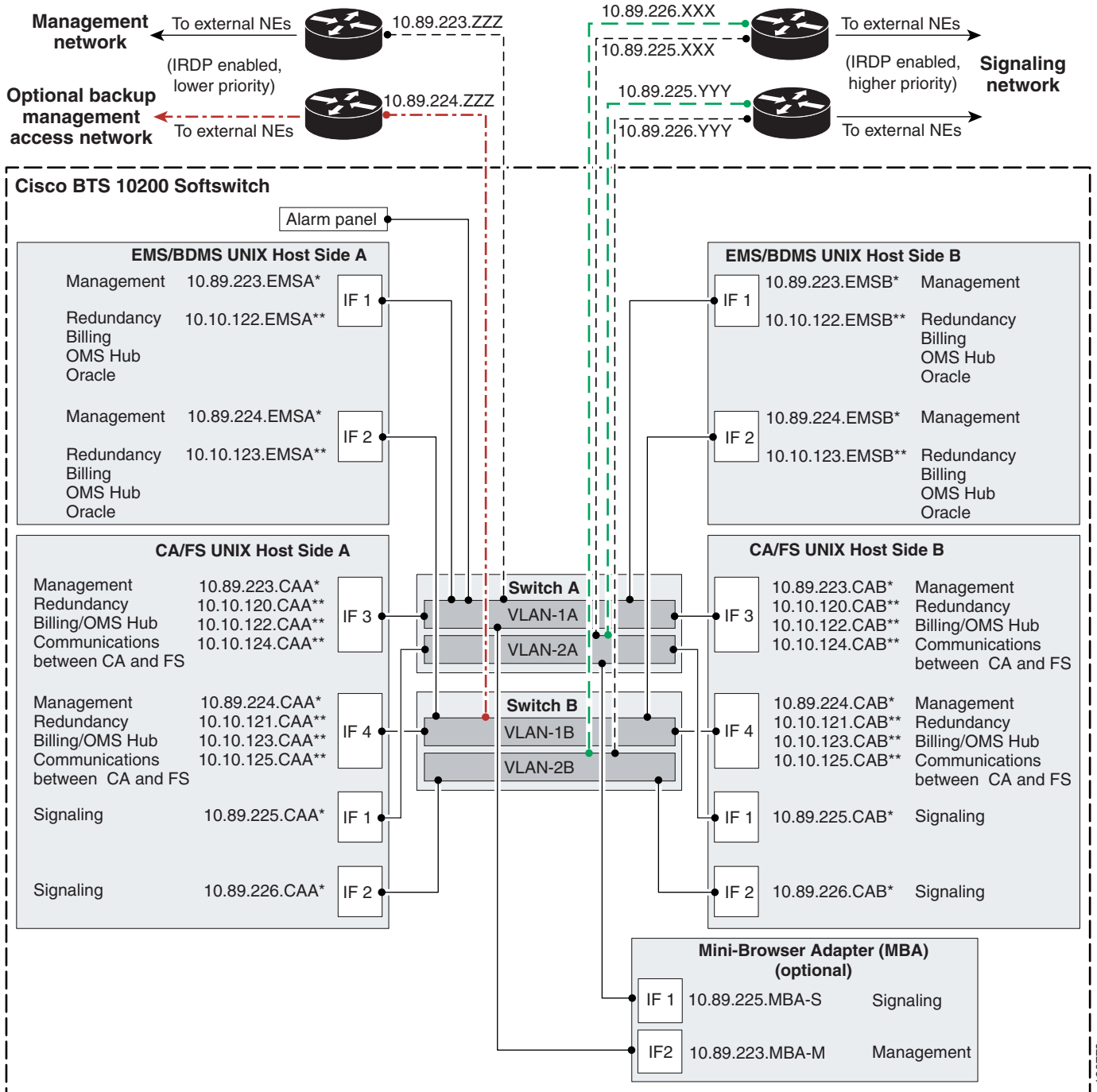
Figure 2-1 H.323 Network with GK Present



The internal interfaces of the Cisco BTS 10200 Softswitch are shown in [Figure 2-2](#). There are two signaling links on each CA (shown in the drawing as IF1 and IF2 on each CA unit).

- One link connects IF1 on the CA to a port on Catalyst Switch A, and is in VLAN-2A.
- The other link connects IF2 on the CA to a port on Catalyst Switch B and is in VLAN-2B.

Figure 2-2 Cisco BTS 10200 Softswitch Network Configuration



Note The same IP address is used for IF1 on both the active and standby sides of the CA, and likewise the same IP address is used for IF2 on both the active and standby sides.

126773

Prerequisites for H.323 Networks

This section lists prerequisites for video phones, and for networks with and without GKs.

Video Phones

It might not be necessary to configure the GK address in the individual H.323 video phones. The Cisco BTS 10200 Softswitch can receive incoming calls from an H.323 phone with or without using the GK, provided that the H.323 phone supports direct routing. The H.323-based video phones must have the following capabilities:

- The video phones must be able to communicate with the GK, if a GK is present in the network.
- The video phones must be capable of using slow-start connection procedures.

Networks with GKs

If the Cisco BTS 10200 Softswitch is connected to one or more GKs in the H.323 network, the GKs must be configured to support video calls:

- The GKs can be configured to reroute an originating call from a video terminal to the Cisco BTS 10200 Softswitch first (before completing the call to the terminating video terminal). The Cisco BTS 10200 Softswitch participates in the video call as an H.323 proxy (IP-to-IP MGW).
- The GKs can be configured to provide validation and registration of the video phone functions performed by the Cisco BTS 10200 Softswitch. The Cisco BTS 10200 Softswitch does not provide GK functions such as registration and authentication of endpoints.

Networks Without GKs (Direct Routing)

Setting Up Direct Routing on the Cisco BTS 10200 Softswitch

For direct routing scenarios (not using RAS signaling to a GK) the transport service access point (TSAP) addresses of the far-end H.323 endpoints must be identified, so that they can be provisioned in the Cisco BTS 10200 Softswitch database. The TSAP addresses are provisioned for each applicable TG or terminal.

Setting Up Direct Routing on the Peer H.323 GW

If a GK is not used, direct routing must be set up on each of the peer H.323 GWs that communicates with the Cisco BTS 10200 Softswitch. Use this procedure to set up direct routing. While performing this procedure, refer to [Figure 2-2](#) for a description of signaling interfaces and parameters.

Obtain information from the Cisco BTS 10200 Softswitch and provision the H.323 GW in the following way:

-
- Step 1** On the UNIX level on the active CA, enter the following command (example shown) to determine the IP addresses of the signaling interfaces (IF1 and IF2).

```
host# nslookup h3a-SYS37CA146.ipclab.cisco.com
```

```

Typical system response:
Server: lion.ipclab.cisco.com
Address: 10.89.224.1
Name: h3a-SYS37CA146.ipclab.cisco.com
Addresses: 10.89.226.17, 10.89.225.17

```



Tip The domain name for this H.323 link always includes h3a-SYS. The full domain name is shown in the Network Information Data Sheet (NIDS) that was supplied with your system. Alternatively, you can search in the DNS server for domain names containing h3a-SYS.

Step 2 On the Cisco BTS 10200 Softswitch, enter the following CLI command (example shown) to determine which signaling interface (IF1 or IF2) is active on the active CA. The active signaling interface carries the H.323 signaling (and other protocol signaling, if present). The system response contains an IP address for the currently active signaling link.

```
status h323-gw id=GW37_Central_4;
```

A typical system response is shown below.



Note The IP ADDRESS displayed in this system response is the active IP address.

```

status h323-gw id=TB37_Central_4;

ADMIN STATE -> ADMIN_INS
H3A PROCESS NUMBER -> 40
H3A PROCESS NAME -> H3A4
ENDPOINT ID -> 6333EC4400000005
ACTIVE CALLS -> 0
RAS STATE -> CCH323_RAS_STATE_IDLE
RAS PORT -> 57781
IP ADDRESS -> 10.89.225.17
REGISTERED GATEKEEPER ID -> H5-GK
PRIMARY GATEKEEPER ID -> H5-GK
PRIMARY GATEKEEPER PORT -> 1719
PRIMARY GATEKEEPER IP -> 10.89.227.80
H323 VERSION -> 4
TIME TO LIVE -> 60
NUM ALT GATEKEEPERS -> 0
ALT GATEKEEPER PERMANENT -> TRUE
THRESHOLD ENABLED -> FALSE
OUT OF RESOURCES -> FALSE
ALT GATEKEEPER LIST ->

```

Step 3 On the peer H.323 GW, set up two IP addresses. Set the IP address that is currently active on the CA as primary, and set one alternate IP address (to be used if the primary IP address becomes unreachable).



Tip

The active IP address is the address returned in the status query ([Step 2](#)), and the standby IP address is the other IP address listed in the response to the nslookup query ([Step 1](#)).

- a. If the peer H.323 GW is IOS-based, configure this using two dial-peer entries with preferences. Set the preference to 1 on the dial-peer that has the session-target IP address for the active signaling link of the CA. Set preference to 2 on the dial-peer that has the session-target IP address for the standby signaling link of the CA.
- b. If the peer H.323 GW is a Cisco CallManager H.323 intercluster trunk, configure this in the Remote Cisco CallManager Information dialog box as Server IP Address 1 and Server IP Address 2.

- Step 4** On the peer H.323 GW, set the H.225 TCP timeout delay to 3 seconds. The purpose of reducing this to 3 seconds is to allow the GW to switch promptly to a secondary IP address if the primary (top preference) IP address goes down.



Note It is important to set the timeout delay in the peer H.323 GW, because the default timeout delay can be much greater than three seconds, which can cause unacceptable call setup delays if one signaling link on the CA goes down.

- Step 5** Verify that the active connection is functioning properly PRI by completing several test calls.

Restrictions and Limitations

This section describes restrictions and limitations applicable to the H.323 implementation.

Interoperability with Other H.323 Endpoints

The features described in this document are based on ITU-T Recommendation H.323, *Packet-based multimedia communications systems*, Draft v4 (11/2000). H.323-based endpoints that do not comply fully with this draft of the ITU-T recommendation might not support all of these same features. When you are selecting H.323-based devices, we recommend that you discuss your specific requirements with your Cisco account team.

The *Cisco BTS 10200 Softswitch Release Notes* document identifies the specific peripheral platforms and software loads that have been tested by Cisco for H.323 interoperability with the Cisco BTS 10200 Softswitch software. If you would like to use additional features and devices, ask your Cisco account team for assistance.



Note The interoperability list in the *Cisco BTS 10200 Softswitch Release Notes* includes H.323-based video phones, analog telephone adapters (ATAs), H.323-based PRI gateways, H.323 IP-to-IP GWs, H.323 GKs, and Cisco CallManager.

Functionality Related to Video Phones

The Cisco BTS 10200 Softswitch supports basic call functions for video phones, along with the following subscriber features:

- Call Forwarding Unconditional (CFU) and Call Forwarding Busy (CFB)
- Calling identity features including presentation and blocking

The following restrictions and limitations apply to video phone calls connected through the Cisco BTS 10200 Softswitch:

- Video calls must be originated using slow-start procedures. H.323 fast-connect signaling does not work for video calls.
- If a video phone uses an H.245 tunneling feature, H.245 tunneling must be disabled in the Cisco BTS 10200 Softswitch H323-TERM-PROFILE table associated with that phone.

- In some cases, video phones do not support codec negotiation. When codec negotiation is not supported by the phones, the originating and terminating video phones must use the same codec.
- Video calls cannot be originated or terminated using multiline hunt group (MLHG) line access.
- In general, the Cisco BTS 10200 Softswitch preserves stable calls during an internal transient such as a process restart or platform switchover. However, H.323-based calls can be preserved only if the connection uses both H.323 Annex E and fast-start functionalities or H.323 Annex E and slow-start with H245 Tunneling enabled. If the video endpoints in a call do not support fast-start or slow-start with H245 Tunneling enabled, these calls are dropped when there is a platform switchover or a process restart that affects H.323 call processing.

Functionality Related to ATA Clients

The Cisco BTS 10200 Softswitch supports basic call functions for ATA clients using H.323 protocol, along with the following subscriber features:

- Call Forward Unconditional (CFU), call Forward Busy (CFB), and Call Forwarding No Answer (CFNA)
- Call Waiting (CW) and Calling ID Delivery on Call Waiting (CIDCW)
- Calling identity features including presentation and blocking
- Call Transfer (CT) and Three-Way Calling (TWC)

Interoperability Data for Cisco IOS GWs, Cisco CallManager, and MGCP GWs

The Cisco BTS 10200 Softswitch provides connectivity with H.323 IOS-based gateways, Cisco CallManager, and MGCP-based gateways. These systems interoperate to provide subscriber features such as call forwarding, call waiting, call transfer, and three-way calling. See the [“Interoperability Data for Cisco IOS, Cisco CallManager, and MGCP”](#) section on page 6-1 for additional interoperability data.

